

AMENDMENTS TO THE CLAIMS:

If entered, this listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently Amended) A flexible pixel sensor element control system ~~configured to read out and processes analog values from a plurality of pixel sensor elements to process~~ a plurality of pixel sensor elements, the system
- 5 comprising:
- an array of pixel sensor elements; and
- a readout and processing circuit ~~configured to readout and processes a plurality of analog values associated with a plurality of pixel sensor elements within~~
- 10 ~~the array, the readout and processing circuit being configured to read out and processes the analog values in a first mode and in a second mode.~~ wherein the readout and processing circuit reads out and averages a first analog value readout from a pixel sensor element of a first color

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15 with a second analog value readout from a pixel sensor
element of a second color to produce an average readout
value;

a first analog line storage unit, the first analog
line storage unit been adapted to store a first line
20 readout from the array; and

a second analog line storage unit, the second analog
line storage unit being adapted to store a third line
readout from the array, wherein the readout and processing
circuit averages a second consecutive line readout from the
25 array with the first line readout stored in the first
analog line storage unit to produce a first red-green-blue
(RGB) triplet, and wherein the readout and processing
circuit averages a fourth consecutive line readout from the
array with the third line readout stored in the second
30 analog line storage unit to produce a second RGB tripllett.

2.(Original) The system of claim 1, wherein the readout and
processing circuit is adapted to read a plurality of pixel
sensor elements in parallel.

3. (Canceled)

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4.(Original) The system of claim 1, wherein the pixel sensor elements form a portion of a charge coupled device.

5.(Original) The system of claim 1, wherein the pixel sensor elements form a portion of a complementary metal oxide semiconductor device.

6.(Original) The system of claim 1, wherein the pixel sensor elements are organized in a rectangular matrix.

7.(Currently Amended) The system of claim 1, wherein ~~the first mode~~ said line readouts comprises are performed using a full resolution readout mode.

8.(Currently Amended) The system of claim 1, ~~the first mode~~ said line readouts comprises are performed using a sub-sampling readout mode.

9.(Currently Amended) The system of claim 1, ~~the first mode~~ said line readouts comprises are performed using a window readout mode.

10.(Original) The system of claim 1, further comprising a color filter overlaying at least a portion of the pixel

sensor elements.

11.(Original) The system of claim 10, wherein the color filter includes the colors of red, blue and green in a predefined pattern.

12.(Original) The system of claim 10, wherein the color filter includes the colors of yellow, cyan and magenta in a predefined pattern.

13.(Original) The system of claim 10, where in the color filter comprises a Bayer color pattern.

14.(Original) The system of claim 1, further comprising a micro-lenses layer.

15.(Original) The system of claim 1, further comprising amplifiers adapted to amplify the analog values readout and processed by the readout and processing circuit.

16.(Currently Amended) The system of claim 15, wherein the ~~programmable-gain~~ amplifiers are implemented as a separate stage.

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17.(Currently Amended) The system of claim 15, wherein the ~~programmable-gain~~ amplifiers are contained within a pixel circuitry of the array.

18.(Currently Amended) The system of claim 15, wherein the ~~programmable-gain~~ amplifiers are within a plurality of column buffers.

19.(Original) The system of claim 1, wherein a first gain amplifier amplifies a first analog color component a first amount and a second amplifier amplifies a second analog color component a second amount, the first and
5 second analog color components being readout by the readout and processing circuit.

20.(Original) The system of claim 19, wherein the amplifiers are programmable gain amplifiers adapted to be adjusted by a controller.

21.(Original) The system of claim 19, wherein the first gain amplifier provides a first transfer function for the first color component and the second gain amplifier provides a second transfer function for the second
5 color component.

22.(Original) The system of claim 15, wherein at least one of the amplifiers is a summing amplifier that sums the analog values of two or more pixel sensor elements.

23.(Original) The system of claim 1, further comprising a television coupled to said readout and processing circuit.

24.(Original) The system of claim 1, further comprising a personal computer coupled to said readout and processing circuit.

25.(Original) The system of claim 1, further comprising a display coupled to said readout and processing circuit.

26.(Original) The system of claim 1, further comprising a camera coupled to said readout and processing circuit.

27.(Currently Amended) A flexible pixel sensor element control system that processes of a plurality of pixel sensor elements, the system comprising:

an array of pixel sensor elements; and

5 a control circuit, wherein the control circuit reads out and averages a first analog value readout from a pixel

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sensor element of a first color with a second analog value
readout from a pixel sensor element of a second color to
produce an average readout value. wherein the control

10 circuit is adapted to read a plurality of pixel sensor
elements in parallel;

a first analog line storage unit, the first analog
line storage unit been adapted to store a first line
readout from the array; and

15 a second analog line storage unit, the second analog
line storage unit being adapted to store a third line
readout from the array, wherein the readout and processing
circuit averages a second consecutive line readout from the
array with the first line readout stored in the first
20 analog line storage unit to produce a first red-green-blue
(RGB) triplet, the readout circuit and processing averaging
a fourth consecutive line readout from the array with the
third line readout stored in the second analog line storage
unit to produce a second RGB triplett.

28. (Canceled)

29. (Canceled)

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30.(Currently Amended) The system of claim 27, wherein the control circuit reads out and averages the ~~first and second~~ analog values on-the-fly.

31.(Original) The system of claim 27, further comprising gain amplifiers amplifying the average readout value.

32 - 34. (Canceled)